PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6:

(11) International Publication Number:

WO 96/13291

A61M 11/00, 15/00, B65D 47/10

(43) International Publication Date:

9 May 1996 (09.05.96)

(21) International Application Number:

PCT/US95/13910

A1

(22) International Filing Date:

27 October 1995 (27.10.95)

(30) Priority Data:

08/331,047

28 October 1994 (28.10.94)

US

08/508,982

28 July 1995 (28.07.95)

US

(71) Applicant: ARADIGM CORPORATION [US/US]; 26219 Eden Landing Road, Hayward, CA 94545 (US).

(72) Inventors: LLOYD, Lester, J.; 7 Haciendas Road, Orinda, CA 94563 (US). LLOYD, Peter, M.; 6239 Elderberry Drive, Oakland, CA 94611 (US). RUBSAMEN, Reid, M.; 102 El Camino Real, Berkeley, CA 94705 (US). SCHUSTER, Jeffrey, A.; 5 El Portal Court, Berkeley, CA 94708 (US).

(74) Agent: BOZICEVIC, Karl; Fish & Richardson P.C., Suite 100, 2200 Sand Hill Road, Menlo Park, CA 94025 (US).

(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, LS, MW, SD, SZ, UG).

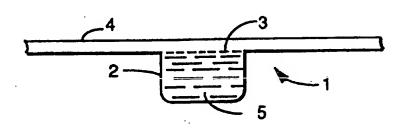
Published

With international search report.

(54) Title: DEVICE FOR AEROSOLIZING NARCOTICS

(57) Abstract

hand-held, **Devices** are units which self-contained are automatically actuated at the same release point in a patient's inspiratory flow cycle. Actuation of the device forces an algesic formulation (5) through a porous membrane (3) of the container (1) which membrane has pores having a diameter in the range of about 0.25 microns to 1.5 microns. The porous membrane is positioned in alignment with a surface of a channel



(11) through which a patient inhales air. The flow profile of air moving through the channel is such that the flow at the surface of the channel is less than the flow rate at the center of the channel. The membrane is designed so that it protrudes outward at all times or made flexible so that when an analgesic formulation is forced against and through the membrane, the flexible membrane protrudes outward beyond the flow boundary layer (13) of the channel into faster moving air.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
ΑÜ	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy ·	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgystan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic	SD	Sudan
CG	Congo		of Korea	SE	Sweden
CH	Switzerland	KR	Republic of Korea	SI	Slovenia
CI	Côte d'Ivoire	K2	Kazakhstan	SK	Slovakia
CM	Cameroon	LI	Liechtenstein	SN	Senegal
CN	China	LK	Sri Lanka	TD	Chad
CS	Czechoslovakia	LU	Luxembourg	TG	Togo
CZ	Czech Republic	LV	Latvia	TJ	Tajikistan
DE	Germany	MC	Monaco	TT	Trinidad and Tobago
DK	Denmark	MD	Republic of Moldova	UA	Ukraine
ES	Spain	MG	Madagascar	US	United States of America
FI	Finland	ML	Mali	UZ	Uzbekistan
FR	France	MN	Mongolia	VN	Viet Nam

GA

Gabon

PCT/US95/13910 WO 96/13291

- 1 -

DEVICE FOR AEROSOLIZING NARCOTICS

Field of the Invention

5

This invention relates generally to containers, devices and methods for aerosolizing formulation which is useful in methods of pain management involving the More specifically, this administration of narcotics. invention relates to containers and packaging used in a 10 hand-held, self-contained device capable of automatically releasing a controlled amount of narcotics to a patient at an optimal point in the respiratory cycle of the patient.

Background of the Invention

Narcotic therapy forms the mainstay of pain 15 management. These drugs can be administered in many forms to patients with postsurgical and other forms of acute and chronic pain. Morphine, one of the oldest narcotics, is available for administration in tablet or in injectable Fentanyl, a synthetic narcotic, form. 20 synthesized in 1960 by Paul Janssen and found to be 150 times more potent than morphine [Theodore Stanley, "The History and Development of the Fentanyl Series, " Journal of Pain and Symptom Management (1992) 7:3 (suppl.), S3-S7]. Fentanyl and its relatives Sufentanil and Alfentanil are 25 available for delivery by injection. In addition, fentanyl is available for administration by a transdermal delivery system in the form of a skin patch [$Duragesic^{TM}$ (fentanyl transdermal system) package insert, Janssen Pharmaceutica, Piscataway, NJ 08855, Jan-Jun 1991].

A feature of the synthetic narcotic fentanyl is that 30 is has a more rapid time to onset and a shorter duration of action than morphine. This makes fentanyl a useful drug for the management of acute pain. Currently, fentanyl is typically given by intravenous injection for acute pain WO 96/13291 PCT/US95/13910

- 2 -

management. Although fentanyl can be given by a transdermal patch, transdermal delivery of fentanyl is designed for long-term administration of the drug and does not lend itself to achieving a peak level rapidly for a short-term effect.

alternative to delivery by injection narcotics is delivery by inhalation. Morphine [J. Chrusbasik et al., "Absorption and Bioavailability of Nebulized Morphine, " Br. J. Anaesth. (1988) 61, 228-30], 10 fentanyl [M.H. Worsley et al., "Inhaled Fentanyl as a Method of Analgesia, " Anaesthesia (1990) 45, 449-51], and sufentanil [A.B. Jaffe et al., "Rats Self-administer Sufentanil in Aerosol Form, " Psychopharmacology, (1989) 99, 289-93] have been shown to be deliverable as aerosols into 15 the lung. The pilot study described by Worsley suggested that "inhaled fentanyl is an effective, safe and convenient method of analgesia which merits further investigation."

Inhalation of a potent synthetic narcotic aerosol provides a mechanism for the non-invasive delivery of 20 rapid-acting boluses of narcotic. The on-demand administration of boluses of narcotic coupled with a controlled baseline intravenous infusion of narcotic is termed "patient-controlled analgesia" (PCA) and has been

summary judgment is to isolate and dispose of factually unsupported claims or defenses. See Celotex Corp. v. Catrett, 477 U.S. 317, 324 (1986); Meyers v. M/V Eugenio C., 842 F.2d 815, 816 (5th Cir. 1988).

The mere existence of a disputed factual issue does not foreclose summary judgment. The dispute must be genuine, and the facts must be material. See Booth v. Wal-Mart Stores, Inc., 75 F. Supp.2d 541, 543 (S.D. Miss. 1999). With regard to "materiality," only those disputes of fact that might affect the outcome of the lawsuit under the governing substantive law will preclude summary judgment. See id. (citing Phillips Oil Company v. OKC Corp., 812 F.2d 265, 272 (5th Cir. 1987)). Where "the summary judgment evidence establishes that one of the essential elements of the plaintiff's cause of action does not exist as a matter of law, all other contested issues of fact are rendered immaterial." Id. (quoting Topalian v. Ehrman, 954 F.2d 1125, 1138 (5th Cir. 1987)).

To rebut a properly supported motion for summary judgment, the opposing party must present significant probative evidence, since there is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party. See Booth, 75 F. Supp.2d at 543. If the evidence is merely colorable, or is not significantly probative, summary judgment is appropriate. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 249 (1986). The non-movant may not rely on mere denials of material facts, nor on unsworn allegations in the pleadings or arguments and assertions in briefs or legal memoranda. See Booth, 75 F.

Supp.2d at 543.

Because this is a case of diversity jurisdiction, the Court must apply state substantive law. See Krieser v. Hobbs, 166 F.3d 736, 739 (5th Cir. 1999); Erie R. Co. v. Tompkins, 304 U.S. 64, 79-80 (1938).

The core of what has become known as the '*Erie* Doctrine' is that the substantive law to be applied by a federal court in any case before it is state law, except when the matter before the court is governed by the United States Constitution, an Act of Congress, a treaty, international law, the domestic law of another country, or in special circumstances, by federal common law.

Hanley v. Forester, 903 F.2d 1030, 1032 (5th Cir. 1990).

B. Ownership of the Forklift

Defendants maintain that since the forklift operated by Parker at the time of the accident was not owned by or rented from them, they cannot be held liable for Plaintiff's injuries. See Br. in Supp. of Defs.' First Mot. for Summ. J. at 5-6; see also Br. in Supp. of Defs.' Second Mot. for Summ. J. at 5-6. However, because Plaintiff has presented colorable evidence which he claims tends to establish Defendants' possible ownership and/or rental of the forklift, the Court cannot grant summary judgment in Defendants' favor on this basis. See Westbrook Unsworn Declaration, attached as Ex. "A" to Pl.'s Supp. Unsworn Decl. in Resp. to Defs.' First Mot. for Summ. J (recalling that Prime Equipment delivered the equipment); Pl.'s Dep. at

² Defendants criticize Plaintiff's use of the Unsworn Declaration of Danny Westbrook. *See* Defs.' Reply to Pl.'s Resp. to Defs.' First Mot. for Summ. J. at p.3-4. Defendants assert that Plaintiff 1) waited to produce the Declaration until the date their Reply was due; 2) failed to provide a complete transcript; and 3) failed to inform the Court that Westbrook had been incarcerated. *See id.* Because

p. 22-24, attached as Ex. "D" to Pl.'s Resp. to Defs.' First Mot. for Summ. J. (recalling seeing the "Prime Equipment" logo on the forklift); Flores Aff., attached as Ex. "E" to Pl.'s Resp. to Defs.' First Mot. for Summ. J. (recalling seeing the "Prime Equipment" logo on the forklift). Nevertheless, *even if* ownership or rental of the forklift were not in dispute, summary judgment would remain inappropriate since the Court is of the opinion that these issues are not dispositive of Plaintiff's "failure to properly train" claim.

C. <u>Negligence and Causation</u>

Plaintiff contends that summary judgment in his favor should be granted on the issue of liability since the record establishes that the April 24, 2003, accident resulted from a negligent act by Parker, and that such negligence was caused by improper training provided by Prime. *See* Br. in Supp. of Pl.'s Mot. for Partial Summ. J. at p. 12-13. Though Plaintiff presents evidence which tends to support his contentions, the record also contains contrary evidence. *Compare* Contractor Significant Incident Report, attached as Ex. "5" to Pl.'s Reply to Defs.' Resp. to Pl.'s

Defendants did not file a formal Motion to Strike and because the Court finds Westbrook's statement cumulative of evidence already in the record, the Court is of the opinion that the statement is not prejudicial and may be used in support of Plaintiff's case at this time.

³The Court finds it immaterial that Prime was no longer in business at the time of the accident, nor does the Court find it significant that the evidence suggests the forklift carried the "Prime" logo rather than the "RSC" logo. *See* Defs.' Reply to Pl.'s Resp. to Defs.' First Mot. for Summ. J. at p. 2-3. It is undisputed that Prime and RSC merged in 2001 and continued to operate under the RSC name thereafter. *See id*.

Suppl. Mot. for Summ. J. (attributing a portion of fault of the accident to the forklift operator), with Pate Dep. at p. 31, 33, attached as Ex. "F" to Defs.' Second Mot. for Summ. J. (stating his investigation showed no evidence of a safety violation associated with the act).⁴ Because these factual disputes are material ones, summary judgment is not appropriate.

In addition, summary judgment is

ordinarily (but not always) inappropriate when the issue involves negligence or contributory negligence, 10 Wright, Miller, and Kane, Federal Practice and Procedure, § 2729 (2d ed. 1983), since "even where there is no dispute as to the facts, it is usually for the jury to decide whether the conduct in question meets the reasonable man standard."

Matthews v. Ashland Chemical, Inc., 703 F.2d 921, 925 (5th Cir. 1983)(citing WRIGHT, MILLER & KANE, supra, § 2729); see also Gordy v. City of Canton, Miss., 543 F.2d 558, 564 (5th Cir. 1976)(finding that under Mississippi law, the issues of comparative and contributory negligence are questions for a jury).

Here, the Court is of the opinion that the reasonableness of Parker's actions,

⁴The Court is aware that the expert report of Dennis R. Howard expresses Howard's opinion that Parker's negligence caused the April 24, 2003, accident, and that such negligence resulted from improper forklift training by Prime. *See* Howard Report, attached as Ex. "1" to Pl.'s Reply to Defs.' Resp. to Pl.'s Supp. Mot. for Partial Summ. J. The Court is also aware that the expert reports of David Hoover and James W. Stanley support Defendants' position that the accident did not result from improper training and certification of Parker. *See* Hoover Expert Report, attached as Ex. "C" to Defs.' Resp. to Pl.'s Mot. for Partial Summ. J.; Stanley Expert Report, attached as Ex. "D" to Defs.' Resp. to Pl.'s Mot. for Partial Summ. J. In light of the pending Motion to Strike [133] Howard as an expert witness and the pending Motions in Limine to Limit or Exclude the Testimony of Hoover [192] and Stanley [190], which the Court does not decide at this time, and because the record otherwise demonstrates fact questions as to the issues of negligence and causation, the Court finds it unnecessary to consider the reports of Howard, Hoover, or Stanley for purposes of resolving the pending summary judgment motions.

as well as those of any other relevant person or entity, are most properly determined by the jury after hearing the evidence. *See Matthews*, 703 F.2d at 925-926(citing *Gross v. Southern Railway Company*, 414 F.2d 292, 296 (5th Cir. 1969)).

D. <u>Proper Training</u>

Plaintiff asserts that the incident resulted from Defendants' failure to properly train Parker pursuant to OSHA and industry standards. See Pl.'s Mot. for Partial Summ. J. at p. 4. Defendants reject Plaintiff's contention and instead claim that summary judgment should be granted in their favor since the employer is ultimately responsible for employee training under OSHA regulations. See Br. in Supp. of Defs.' Second Mot. for Summ. J. at p. 7-9. Based on the evidence before the Court, summary judgment on the basis of these arguments would be inappropriate in favor of either party.

Chapter 29, section 1910.178 of the Code of Federal Regulations, promulgated under OSHA, governs operation of powered industrial trucks, which includes rough terrain forklifts. See 29 CFR § 1910.178; see also Powered Industrial Truck Operator Training; Final Rule, 63:66237-66274 (Dec. 1, 1998), attached as Ex. "J" to Pl.'s Resp. to Defs.' Second Mot. for Summ. J.⁵ This regulation provides certain guidelines that must be followed when training individuals in the operation of such vehicles. See id; see also Pl.'s Br. in Supp. of Mot. for Partial Summ. J. at 3; see also Pagan Dep. at p. 60, attached as Ex. "F" to Pl.'s Resp. to Defs.' Second Mot.

⁵The final rule can also be found at Powered Industrial Truck Operator Training, 63 Fed. Reg. 66238-01 (Dec. 1, 1998)(codified at 29 CFR 1910.178(1)).

for Summ. J.

In 1999, OSHA revised section 1910.178 to implement more stringent training requirements. See England Dep. at p. 23-24, attached as Ex. "A" to Pl.'s Resp. to Defs.' Second Mot. for Summ. J.; Pate Dep. at p. 12, attached as Ex. "E" to Pl.'s Supp. Mot. for Partial Summ. J. Pursuant to this revision, OSHA does not require that an employer instruct its employees directly, but instead permits third parties to conduct the training. 6 See Powered Industrial Truck Operator Training; Final Rule, 63 Fed. Reg. 66237-66274 (Dec. 1, 1998), attached as Ex. "J" to Pl.'s Resp. to Defs.' Second Mot. for Summ. J. (stating that "[s]ince the proposal, OSHA has changed the language of the final rule to clarify that the employer does not need to administer the training but may have it provided by an outside training provider."). The record reflects that Prime, as a third party trainer, adapted its training manual to ensure operators received the heightened training requirements under the revisions. See England Dep. at p. 47-49, attached as Ex. "C" to Defs.' Reply to Pl.'s Resp. to Defs.' Second Mot. for Summ. J; see also Prime Operator Training Manual at p. 7, attached as Ex. "M" to Pl.'s Resp. to Defs.' Second Mot. for Summ. J.

The revised section 1910.178 contains provisions for training, as well as for duplicative training. Training must consist of

⁶The Court acknowledges the pending Motion in Limine to Exclude Evidence Applying Incorrect OSHA Standard [196]. Though the Court reserves ruling on the subject Motion until it is fully briefed, the plain language of the regulation and the final rule permit outside parties to conduct OSHA training.

a combination of formal instruction (e.g. lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainee), and evaluation of the operator's performance in the workplace.

29 CFR § 1910.178(l)(2)(ii).

The provision for duplicative training, on the other hand, provides that

[i]f an operator has previously received training in a topic specified in paragraph l(3) of this section, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.

29 CFR § 1910.178(l)(5).

The regulation also provides that "[a]n evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years." 29 CFR § 1910.178(l)(4)(iii).

There is no serious dispute among the parties that some training was provided by Prime to Parker in May 2000, or that Parker received prior training on rough terrain forklifts sometime in the 1990's. *See* Parker Dep. at p. 48, attached as Ex. "B" to Pl.'s Supp. Mot. for Partial Summ. J. Disputes exist, however, as to the extent of the training actually provided by Prime in May 2000 and the amount of training Prime was required to provide pursuant to the subject regulation and industry standards.

The record reveals three different versions of the training Parker received from Prime in May 2000. Parker testified in his deposition that he received ten minutes of instruction by Prime and thereafter received a certification card;

Lindsey, Plaintiff's employer on the KAFB project who was purportedly present during the May 2000 training session, testified in his deposition that thirty minutes of verbal instruction was provided, as well as hands-on training with the equipment. See Parker Dep. at p. 7-11, attached as Ex. "B" to Pl.'s Supp. Mot. for Partial Summ. J.; Lindsey Dep. at p. 45-46, attached as Ex. "D" to Pl.'s Mot. for Partial Summ. J. Mike England, the Prime employee who administered the training in May 2000, testified in his deposition that the three basic training components under OSHA and Prime standards included a written test, video or classroom presentation, and hands-on training, which entailed observing the operator on the equipment. See England Dep. at p. 39, attached as Ex. "D" to Defs.' Resp. to Pl.'s Supp. Mot. for Partial Summ. J. According to England, if Parker received a Prime certification card with his signature, then Parker received the full training session. See id. at 77.

There also appears to be disagreement as to the training required under the regulation at issue. For instance, the record reflects disputes as to what constitutes proper "evaluation" under the duplicative training provision and the three year reevaluation provision. See Pate Dep. at p. 86, 92, attached as Ex. "E" to Pl.'s Supp. Mot. for Partial Summ. J. (stating "OSHA doesn't use the word 'retrained.' They say 'evaluate.' And that leaves it open. Some people say, yes, you've got to be retrained and you've got to have another card. I personally feel that...at the end of three years if you are familiar with that operator's style, you don't have to sit down and do a formal evaluation, it's ongoing....OSHA says you will re-evaluate. That is

interpreted by retraining or re-evaluating. It's a bit ambiguous as to what "evaluate" means.").

Finally, the Court is not persuaded by Defendants' argument that summary judgment is warranted on the grounds that Plaintiff's employer is the party held responsible for violations of OSHA regulations. See Br. in Supp. of Defs.' Second Mot. for Summ. J. at p. 7-9. In a civil case, a plaintiff is afforded the right to use OSHA violations as evidence of negligence against a non-employer and have the trier of fact weigh this evidence, along with all other evidence presented at trial, in making a liability determination. See Melerine v. Avondale Shipyards, Inc., 659 F.2d 706, 713 n.22 (5th Cir. 1981); Comardelle v. Sears, Roebuck & Co., No. Civ. A. 95-1371, 1996 WL 63100, at *1-2 (E.D. La. Feb. 14, 1996).

E. Punitive Damages

Defendants contend that the record is devoid of any evidence of acts by Prime or RSC arising above simple negligence, such that Plaintiff's claim for punitive damages should be dismissed. *See* Br. in Supp. of Defs.' First Mot. for Summ. J. at p. 6-8; Br. in Supp. of Defs.' Second Mot. for Summ. J. at p. 9-10. Due to the numerous questions of fact evident from the record, the Court declines to grant summary judgment on this claim at this time. Defendants may reassert a motion for judgment on Plaintiff's punitive damages claim at trial, if appropriate.

III. CONCLUSION

Based upon the evidence in the record, fact questions remain on all issues thereby precluding summary judgment in favor of either party.

IT IS, THEREFORE, ORDERED AND ADJUDGED that, for the reasons cited more fully herein, the Motions [37, 131] of Defendants Rental Service Corporation and Prime Equipment & Supply Corp., for Summary Judgment, filed on March 5, 2007, and September 28, 2007, respectively, pursuant to FED. R. CIV. P. 56, should be and are hereby **DENIED**.

IT IS, FURTHER, ORDERED AND ADJUDGED that, for the reasons cited more fully herein, the Motion [72] of Plaintiff George A. Shoemake, for Partial Summary Judgment on the Issue of Liability, filed on May 10, 2007, pursuant to FED. R. CIV. P. 56, should be and is hereby **DENIED**.

SO ORDERED AND ADJUDGED, this the 3rd day of January, 2008.

s Halil Suleyman Ozerden
HALIL SULEYMAN OZERDEN
UNITED STATES DISTRICT JUDGE